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Agricultural Memorandum No 564

A unit system approach to powdery scab forecasts

L P Smith

Units were allocated as follows:

Previous disease.	Sum of last 2 years' rating over 5 = 2
	2-4.5 = 1
	below 2 = 0
August soil temperature.	Below 60°F = 2
	61.9-60.0°F = 1
	62°F or above = 0
July top soil mean moisture.	1.0 in or more = 2
	0.5-0.99 in = 1
	Below 0.5 in = 0
August top soil mean moisture.	as July
September rainfall.	Over 4 in = 2
	2-3.99 in = 1
	Below 2 in = 0

Results are given in the appendix.
Forecasts were attempted using the following scale:- Total units 6 or more = HIGH, 3 or 4 = MODERATE, 2 or below = LOW; with the success summarized as:-

		Forecast		
		HIGH	MOD	LOW
Actual	HIGH	7	3	0
	MOD	3	9	3
	LOW	3	10	12

or more simply

		Forecast	
		HIGH	MOD & LOW
Actual	HIGH	7	3
	MOD & LOW	6	34

both of which distributions are significant statistically.
The major errors occurred in 1941, 1956 and 1968.

Any comments or suggestions on this paper should be referred to the author.

Meteorological Office
Bracknell

FH1

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APPENDIX

Year	Rating	Counts	Previous Disease	August Temp	July moisture	August moisture	September rain	Total
1922	5		2	2	2	2	1	9
1928	4		2	1	0	1	0	4
1930	4		1	2	1	1	2	7
1966	4		1	1	0	1	0	3
1931	4		1	2	2	2	1	8
1923	3.5		2	1	0	1	1	5
1924	3.5		2	2	0	0	1	5
1927	3.5		2	1	0	1	2	6
1932	3.5		2	0	2	1	1	6
1965	3.5		1	1	0	0	2	4
1926	3		2	1	0	0	0	3
1936	3		1	2	2	0	1	6
1937	3		2	0	1	0	0	3
1938	3		2	0	0	0	1	3
1925	2.5		2	1	0	0	1	4
1935	2.5		0	0	0	0	2	2
1961	2.5		0	1	0	1	1	3
1967	2.5		2	0	0	1	0	3
1939	2		2	0	0	1	0	3
1940	2		1	1	1	0	0	3
1943	2		1	1	0	0	1	3
1955	2		0	0	0	0	0	0
1958	2		0	1	2	2	0	5
1963	2		1	2	0	2	1	6
1970	2		0	0.	0	1	0	1
1942	1.5		1	1	0	0	0	2
1959	1.5		1	0	0	0	0	1
1962	1.5		1	1	0	1	1	4
1968	1.5		2	1	2	1	2	8
1921	1		2	1	0	1	0	4
1929	1		2	2	0	0	0	4
1933	1		2	0	0	0	1	3
1941	1		1	2	1	2	0	6
1945	1		0	1	0	0	0	1
1948	1		0	1	1	1	1	4
1950	1		0	1	0	0	1	2
1951	1		0	2	0	2	0	4
1953	1		0	1	0	0	0	1
1954	1		0	2	0	1	0	3
1957	1		0	1	0	0	1	2
1964	1		1	1	0	0	0	2
1934	0		1	1	0	0	0	2
1944	0		1	0	0	1	1	3
1946	0		0	2	0	1	1	4
1947	0		0	0	0	0	0	0
1949	0		0	0	1	0	0	1
1952	0		0	1	0	0	1	2
1956	0		1	2	1	1	0	5
1960	0		1	0	1	0	1	3
1969	0		1	0	0	1	0	2

Which can be summarized by meaning over equal ratings:

Rating	Occasions	Mean Total Units
5	1	9
4	4	5.5
3.5	5	5.2
3	4	3.7
2.5	4	3.0
2	7	3.0
1.5	4	3.7
1	12	3.0
0	9	2.4